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Term	Documents
MATRIX.DWPI,TDBD,EPAB,JPAB,USPT.	429024
MATRICES.DWPI,TDBD,EPAB,JPAB,USPT.	44270
MATRIXES.DWPI,TDBD,EPAB,JPAB,USPT.	5864
(1 AND MATRIX).USPT,JPAB,EPAB,DWPI,TDBD.	4
(L1 AND MATRIX).USPT,JPAB,EPAB,DWPI,TDBD.	4

Database:

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US Pre-Grant Publication Full-Text Database
JPO Abstracts Database
EPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search:

L22

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Set Name Query

side by side

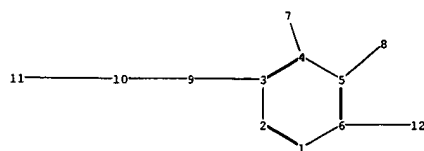
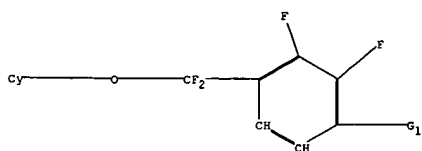
Hit Count Set Name

result set

DB=USPT,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ

<u>L22</u>	L1 and matrix	4	<u>L22</u>
<u>L21</u>	L1 tft	0	<u>L21</u>
<u>L20</u>	L9 with monostable	23	<u>L20</u>
<u>L19</u>	L9 with monstable	0	<u>L19</u>
<u>L18</u>	L17 same active matrix	4	<u>L18</u>
<u>L17</u>	(bistable or bi-stable) same (monostable or mono-stable)	2214	<u>L17</u>
<u>L16</u>	l9 same (bistable or bi-stable) same (monostable or mono-stable)	0	<u>L16</u>
<u>L15</u>	l9 same bistable	13	<u>L15</u>
<u>L14</u>	l13 and polarization	0	<u>L14</u>
<u>L13</u>	l9 same monodomain	11	<u>L13</u>
<u>L12</u>	wo-9905238-\$.did.	2	<u>L12</u>
<u>L11</u>	US-6482479-\$.did.	2	<u>L11</u>
<u>L10</u>	L9 same temperature	18	<u>L10</u>
<u>L9</u>	active matrix with (ferroelectric or chiral smectic)	356	<u>L9</u>
<u>L8</u>	actvce matrix with (ferroelectric or chiral smectic)	0	<u>L8</u>
<u>L7</u>	L1 and active matrix	0	<u>L7</u>
<u>L6</u>	actice matrix with (ferroelectric or chiral smectic)	0	<u>L6</u>
<u>L5</u>	L1 and actice matrix	0	<u>L5</u>
<u>L4</u>	L3 and l2	4	<u>L4</u>
<u>L3</u>	l1 and matrix	4	<u>L3</u>
<u>L2</u>	L1 and chiral smectic	7	<u>L2</u>
<u>L1</u>	us-5250219-\$.did. or us-5366657-\$.did. or us-5413735-\$.did. or us-5391318-\$.did. or us-5286409-\$.did.	10	<u>L1</u>

END OF SEARCH HISTORY



chain nodes :

7 8 9 10 11 12

ring nodes :

1 2 3 4 5 6

chain bonds :

3-9 4-7 5-8 6-12 9-10 10-11

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6

exact/norm bonds :

6-12 10-11

exact bonds :

3-9 4-7 5-8 9-10

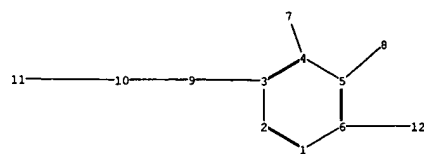
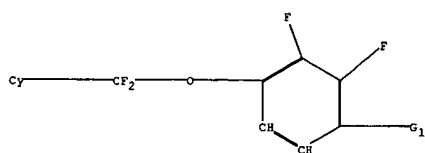
normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6

G1:C,O

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS 10:CLASS
11:Atom 12:CLASS



chain nodes :

7 8 9 10 11 12

ring nodes :

1 2 3 4 5 6

chain bonds :

3-9 4-7 5-8 6-12 9-10 10-11

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6

exact/norm bonds :

3-9 6-12 10-11

exact bonds :

4-7 5-8 9-10

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6

G1:C,O

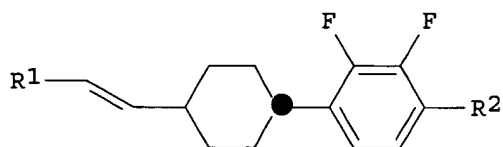
Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS 10:CLASS
11:Atom 12:CLASS

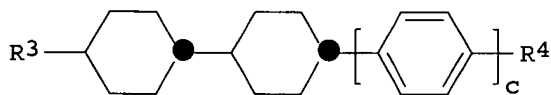
=> dis 1-8 all hitstr

L6 ANSWER 1 OF 8 CAPLUS COPYRIGHT 2003 ACS
AN 2002:924309 CAPLUS
DN 138:18140
TI Nematic liquid crystal mixture suitable for active matrix liquid crystal display
IN Klasen-Memmer, Melanie; Klement, Dagmar; Bremer, Matthias
PA Merck Patent GmbH, Germany
SO Ger. Offen., 24 pp.
CODEN: GWXXBX
DT Patent
LA German
IC ICM C09K019-08
ICS G02F001-137; G09F009-35
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 75
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10218976	A1	20021205	DE 2002-10218976	20020427
	WO 2002099010	A1	20021212	WO 2002-EP4704	20020429
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
PRAI	DE 2001-10126768	A1	20010601		
OS	MARPAT 138:18140				
GI					



I



II

AB The invention relates to a liq. crystal mixt. showing neg. dielec. anisotropy as well as its application to a liq. crystal display, wherein the liq. crystal mixt. comprises one or more compds. represented by I (R1 = H, C1-5-alkyl; R2 = C1-12-alkoxy) and one or more compds. represented by II (R3 = C2-7-alkenyl; R4 = C1-12-alkyl; c = 0, 1). The liq. crystal display can be of ECB-, VA-, DAP-, CSH-, IPS-, ASM- or PALC-type.
ST nematic liq crystal mixt neg dielec anisotropy display

IT Liquid crystal displays
 (nematic liq. crystal mixt. showing neg. dielec. anisotropy suitable
 for active matrix liq. crystal display)

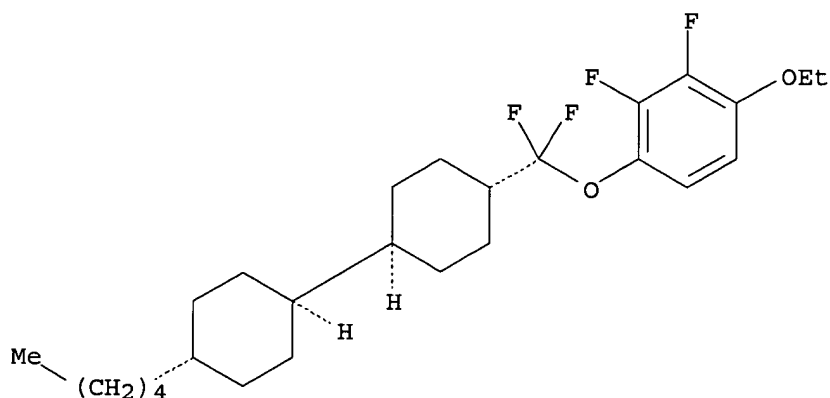
IT Liquid crystals
 (nematic; nematic liq. crystal mixt. showing neg. dielec. anisotropy
 suitable for active matrix liq. crystal display)

IT 80944-44-1 82991-48-8 84540-37-4 92263-41-7 102714-93-2
 116020-44-1 123560-48-5 124728-81-0 124729-02-8 129738-34-7
 129738-42-7 153429-48-2 154346-21-1 155041-85-3 174350-06-2
 174350-08-4 189750-98-9 208709-55-1 253199-08-5 253199-16-5
 263017-37-4 279246-65-0 321395-36-2 323178-01-4 323178-05-8
362053-47-2 362053-68-7 439142-00-4
442912-71-2 442912-72-3 477720-56-2 477720-57-3
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)
 (nematic liq. crystal mixt. showing neg. dielec. anisotropy suitable
 for active matrix liq. crystal display)

IT **362053-47-2 362053-68-7 442912-71-2**
442912-72-3
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)
 (nematic liq. crystal mixt. showing neg. dielec. anisotropy suitable
 for active matrix liq. crystal display)

RN 362053-47-2 CAPLUS

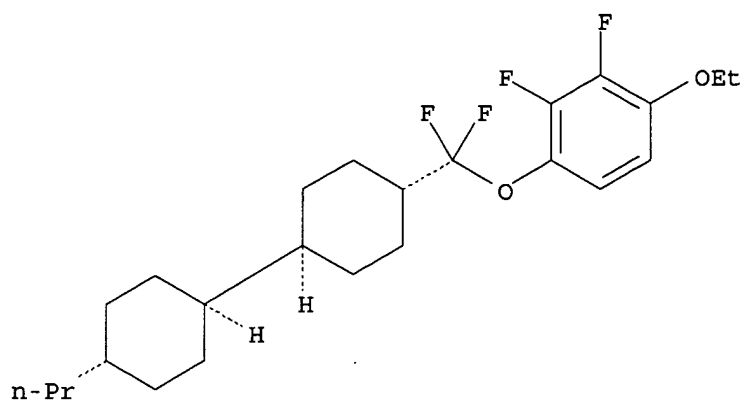
CN Benzene, 1-[difluoro[(trans,trans)-4'-pentyl[1,1'-bicyclohexyl]-4-yl]methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)



RN 362053-68-7 CAPLUS

CN Benzene, 1-[difluoro[(trans,trans)-4'-propyl[1,1'-bicyclohexyl]-4-yl]methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

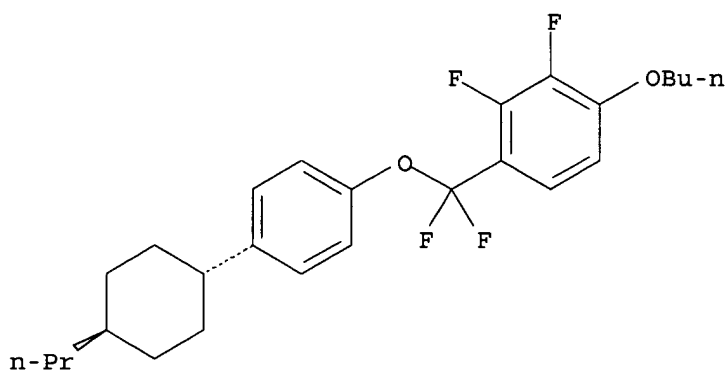
Relative stereochemistry.



RN 442912-71-2 CAPLUS

CN Benzene, 1-butoxy-4-[difluoro[4-(trans-4-propylcyclohexyl)phenoxy]methyl]-2,3-difluoro- (9CI) (CA INDEX NAME)

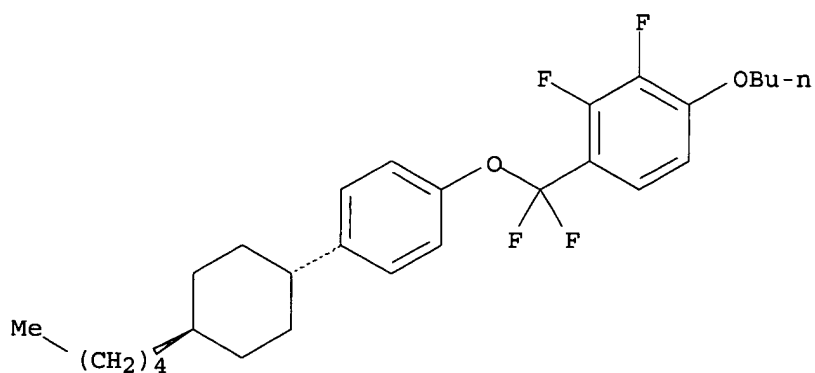
Relative stereochemistry.



RN 442912-72-3 CAPLUS

CN Benzene, 1-butoxy-4-[difluoro[4-(trans-4-pentylcyclohexyl)phenoxy]methyl]-2,3-difluoro- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 2 OF 8 CAPLUS COPYRIGHT 2003 ACS

AN 2002:539263 CAPLUS

DN 137:117016

TI Nematic liquid crystal media and electrooptical displays using them

IN Melanie, Clausen Memar; Clarissa, Verra; Bremer, Mathias

PA Merck Patent G.M.B.H., Germany
SO Jpn. Kokai Tokkyo Koho, 37 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C09K019-42
ICS C09K019-12; C09K019-14; C09K019-20; C09K019-30; C09K019-34;
G02F001-13
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
Section cross-reference(s): 75
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002201474	A2	20020719	JP 2001-299105	20010928
	DE 10158081	A1	20020822	DE 2001-10158081	20011127
	US 2003017279	A1	20030123	US 2001-22523	20011220
PRAI	DE 2000-10063943	A	20001220		
OS	MARPAT 137:117016				

AB The media contain dielec. neg. liq. crystal components (A) including
R1Q1(Z1Q2)nQ3R2 (R1 = C1-7 alkyl or alkoxy, C2-7 alkenyloxy; R2 = C1-7
alkyl or alkoxy, C2-7 alkenyl, alkenyloxy, alkoxyalkyl; gto req. 1 of Z1,2
= OCF2, CF2O; Q1,2 = 1,4-phenylene, cyclohexane-1,4-diyl,
1-cyclohexene-1,4-diyl, 2-fluoro-1-cyclohexene-1,4-diyl; Q3 =
2,3-difluoro-1,4-phenylene; n = 0, 1), dielec. neg. liq. crystal
components (B), dielec. neutral liq. crystal components (C, optional), and
dielec. pos. liq. crystal components (D, optional). The media are esp.
useful for ECB or IPS active matrix liq. crystal displays (LCD) showing
low address voltage and rapid response.

ST nematic liq crystal electrooptical display response; LCD dielec neg liq
crystal component; fluorophenylene liq crystal display address voltage

IT Electrooptical imaging devices
Liquid crystal displays
(nematic liq. crystal media for LCD with low address voltage and rapid
response)

IT Liquid crystals
(nematic; nematic liq. crystal media for LCD with low address voltage
and rapid response)

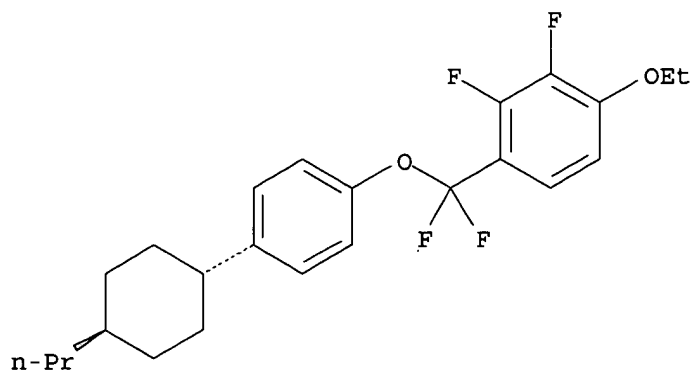
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124728-81-0D, mixt. contg. 124729-02-8D, mixt. contg. 124770-58-7D,
mixt. contg. 129738-34-7D, mixt. contg. 129738-42-7D, mixt. contg.
153429-48-2D, mixt. contg. 154346-21-1D, mixt. contg. 174350-06-2D,
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208709-55-1D, mixt. contg. 253199-08-5D, mixt. contg. 263017-37-4D,
mixt. contg. 279246-65-0D, mixt. contg. 321395-36-2D, mixt. contg.
323178-01-4D, mixt. contg. **329014-46-2D**, mixt. contg.
362053-47-2D, mixt. contg. 438193-88-5D, mixt. contg.
442912-71-2D, mixt. contg. **442912-72-3D**, mixt. contg.
442912-73-4D, mixt. contg. 442912-74-5D, mixt. contg. 442912-75-6D,
mixt. contg. 442912-76-7D, mixt. contg. 442912-77-8D, mixt. contg.
442912-78-9D, mixt. contg.
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)
(nematic liq. crystal media for LCD with low address voltage and rapid
response)

IT **329014-46-2D**, mixt. contg. **362053-47-2D**, mixt. contg.
442912-71-2D, mixt. contg. **442912-72-3D**, mixt. contg.
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)
(nematic liq. crystal media for LCD with low address voltage and rapid
response)

RN 329014-46-2 CAPLUS
CN Benzene, 1-[difluoro[4-(trans-4-propylcyclohexyl)phenoxy]methyl]-4-ethoxy-

2,3-difluoro- (9CI) (CA INDEX NAME)

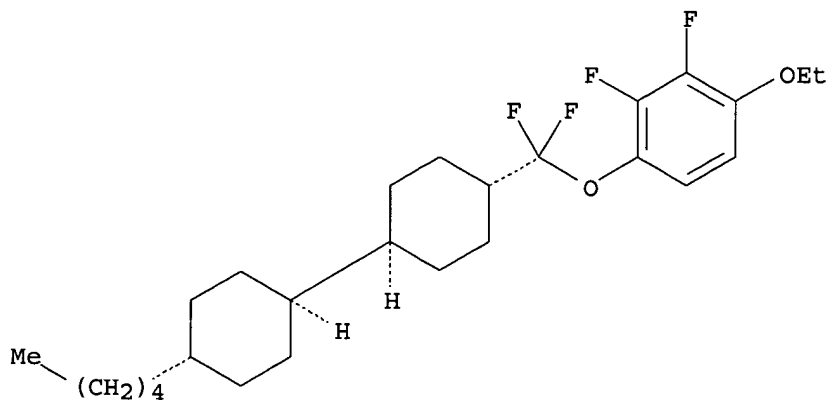
Relative stereochemistry.



RN 362053-47-2 CAPLUS

CN Benzene, 1-[difluoro[(trans,trans)-4'-pentyl[1,1'-bicyclohexyl]-4-yl]methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

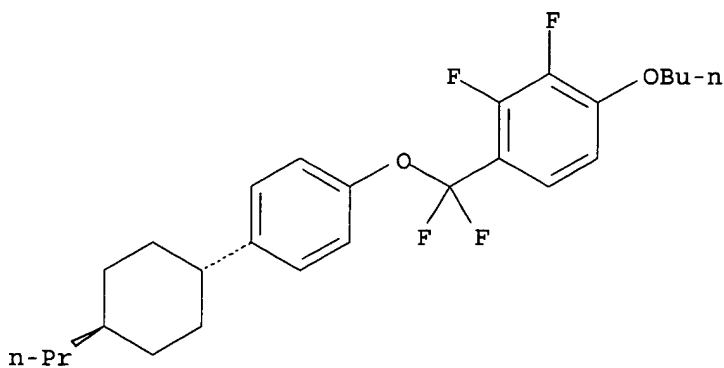
Relative stereochemistry.



RN 442912-71-2 CAPLUS

CN Benzene, 1-butoxy-4-[difluoro[4-(trans-4-propylcyclohexyl)phenoxy]methyl]-2,3-difluoro- (9CI) (CA INDEX NAME)

Relative stereochemistry.

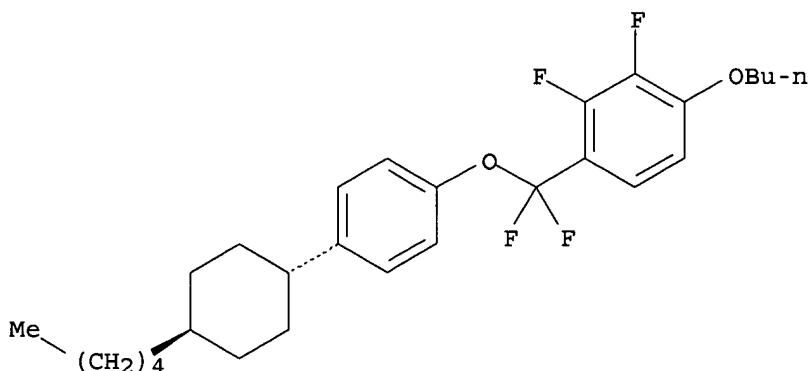


RN 442912-72-3 CAPLUS

CN Benzene, 1-butoxy-4-[difluoro[4-(trans-4-pentylcyclohexyl)phenoxy]methyl]-2,3-difluoro- (9CI) (CA INDEX NAME)

2,3-difluoro- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 3 OF 8 CAPLUS COPYRIGHT 2003 ACS

AN 2002:484690 CAPLUS

DN 137:70567

TI Liquid crystal mixture suitable for active matrix liquid crystal display using ECB (electrically controlled birefringence) effects

IN Klasen, Melanie; Weller, Clarissa; Bremer, Matthias; Pauluth, Detlef; Duebal, Hans-Rolf; Hornung, Barbara; Schmidt, Wolfgang; Wingen, Rainer

PA Merck Patent G.m.b.H., Germany

SO Ger. Offen., 40 pp.

CODEN: GWXXBX

DT Patent

LA German

IC ICM C09K019-06

ICS G02F001-137; G09F009-35

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 75

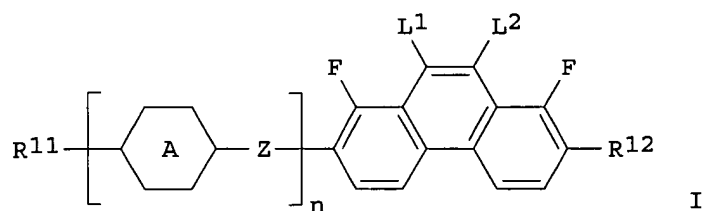
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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	WO 2002051963	A1	20020704	WO 2001-EP11089	20010925
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RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRAI DE 2000-10064995 A 20001223

OS MARPAT 137:70567

GI



AB The invention relates to a liq. crystal mixt. comprised of polar compds. having neg. anisotropy, wherein the liq. crystal mixt. contains at least a compd. represented by general formula I (R11, R12 = C1-15-alkyl, alkenyl; L1, L2 = H, F; A = trans-1,4-cyclohexyl, etc.; Z = -CF2O-, -OCF2-, -C.tplbond.C-, -CF:CF-, -C2F4-, -COO-, -OCO-, single bond; n = 0, 1). Other compds. in the liq. crystal mixt. are also described with Markush structures. The liq. crystal mixt. is esp. suitable for an active matrix IPS (in-plane switching) mode liq. crystal display using ECB (elec. controlled birefringence) effects.

ST liq crystal mixt display ECB effect elec controlled birefringence

IT Liquid crystal displays

(liq. crystal mixt. suitable for active matrix IPS mode liq. crystal display using ECB effects)

IT Liquid crystals

(nematic; liq. crystal mixt. suitable for active matrix IPS mode liq. crystal display using ECB effects)

IT 80944-44-1 81936-32-5 82991-48-8 83242-83-5 84540-37-4

85600-56-2 92263-41-7 96624-52-1 97398-80-6 98321-58-5

102714-92-1 102714-93-2 102714-95-4 116020-36-1 121218-92-6

123560-48-5 123560-54-3 123560-56-5 123560-57-6 124728-81-0

124729-02-8 124770-58-7 124770-59-8 124794-57-6 129738-34-7

154346-21-1 155041-85-3 174350-06-2 174350-08-4 186790-44-3

208709-55-1 253199-08-5 263017-37-4 279246-65-0 321395-36-2

329014-46-2 364765-44-6 439141-95-4 439141-96-5

439141-97-6 439141-98-7 439141-99-8 439142-00-4 439142-01-5

439142-02-6 439142-03-7 439142-04-8 439142-05-9 439142-06-0

439142-07-1 439142-08-2

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(liq. crystal mixt. suitable for active matrix IPS mode liq. crystal display using ECB effects)

IT **329014-46-2**

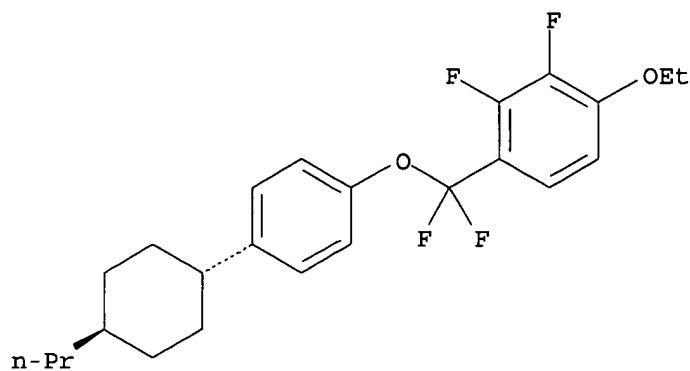
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(liq. crystal mixt. suitable for active matrix IPS mode liq. crystal display using ECB effects)

RN 329014-46-2 CAPLUS

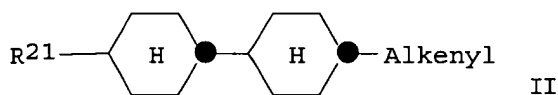
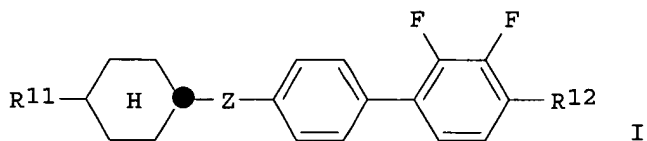
CN Benzene, 1-[difluoro[4-(trans-4-propylcyclohexyl)phenoxy]methyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2003 ACS
 AN 2001:760068 CAPLUS
 DN 135:296297
 TI Liquid crystal mixture with negative dielectric anisotropy for liquid crystal display
 IN Klasen, Melanie; Weller, Clarissa; Tarumi, Kazuaki; Bremer, Matthias
 PA Merck Patent G.m.b.H., Germany
 SO Eur. Pat. Appl., 28 pp.
 CODEN: EPXXDW
 DT Patent
 LA German
 IC ICM C09K019-30
 ICS C09K019-44
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 75
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1146104	A2	20011017	EP 2001-107879	20010410
EP 1146104	A3	20020130		
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DE 10112955	A1	20011122	DE 2001-10112955	20010317
US 2002014613	A1	20020207	US 2001-833743	20010413
JP 2001354967	A2	20011225	JP 2001-116758	20010416
PRAI DE 2000-10018899	A	20000414		
OS MARPAT 135:296297				
GI				



AB The invention relates to a liq. crystal mixt. based on a mixt. of polar compds. with neg. dielec. anisotropy, wherein the liq. crystal mixt. contains at least one compd. represented by I (R11, R12 =

C.l.toreq.15-alkyl, alkenyl; Z = -C2H4-, -CH:CH-, -CF2O-, -OCCF2-, single bond) and at least one compd. represented by II (R21 = C.l.toreq.15-alkyl, alkenyl; Alkenyl = linear C2-6-alkenyl). The liq. crystal mixt. is esp. suitable for ECB (elec. controlled birefringence) and IPS (in-plane switching) type liq. crystal displays.

ST nematic liq crystal mixt neg dielec anisotropy; liq crystal display ECB IPS liq crystal mixt

IT Liquid crystal displays
(liq. crystal mixt. with neg. dielec. anisotropy for liq. crystal display)

IT Liquid crystals
(nematic; liq. crystal mixt. with neg. dielec. anisotropy for liq. crystal display)

IT 80944-44-1 81936-32-5 84540-37-4 87941-72-8 92263-41-7
123560-48-5 123560-54-3 124729-02-8 124770-58-7 129738-34-7
129738-42-7 154346-21-1 155041-85-3 174350-06-2 189750-98-9
197012-45-6 208709-55-1 263017-37-4 279246-65-0
321395-36-2 323178-01-4 323178-05-8 **362053-47-2**
362053-60-9 **362053-68-7** 364765-41-3 364765-42-4
364765-43-5 364765-44-6 364765-48-0 **364765-49-1**
364765-50-4

RL: TEM (Technical or engineered material use); USES (Uses)
(liq. crystal mixt. with neg. dielec. anisotropy for liq. crystal display)

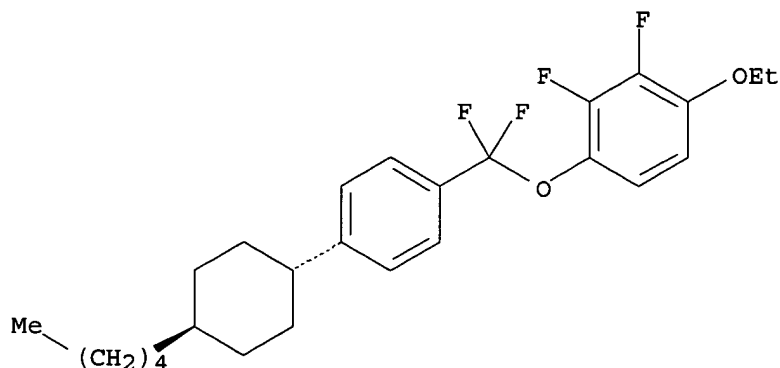
IT **197012-45-6** **362053-47-2** **362053-60-9**
362053-68-7 **364765-49-1** **364765-50-4**

RL: TEM (Technical or engineered material use); USES (Uses)
(liq. crystal mixt. with neg. dielec. anisotropy for liq. crystal display)

RN 197012-45-6 CAPLUS

CN Benzene, 1-[difluoro[4-(trans-4-pentylcyclohexyl)phenyl]methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

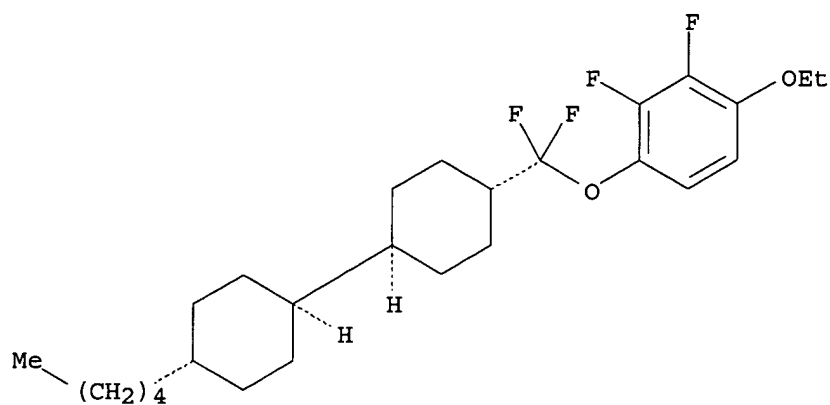
Relative stereochemistry.



RN 362053-47-2 CAPLUS

CN Benzene, 1-[difluoro[(trans,trans)-4'-pentyl[1,1'-bicyclohexyl]-4-yl]methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

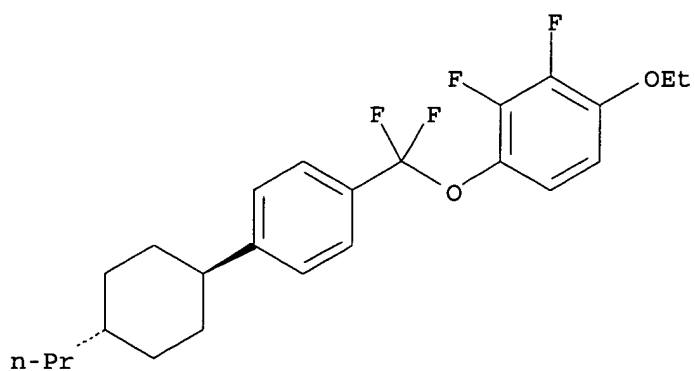
Relative stereochemistry.



RN 362053-60-9 CAPLUS

CN Benzene, 1-[difluoro[4-(trans-4-propylcyclohexyl)phenyl]methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

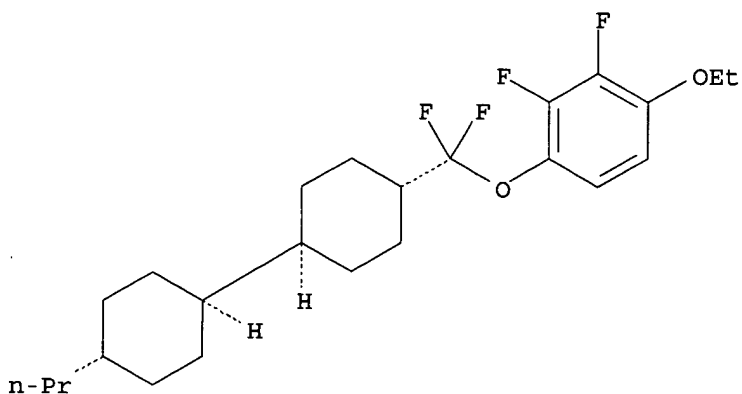
Relative stereochemistry.



RN 362053-68-7 CAPLUS

CN Benzene, 1-[difluoro[(trans,trans)-4'-propyl[1,1'-bicyclohexyl]-4-yl]methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

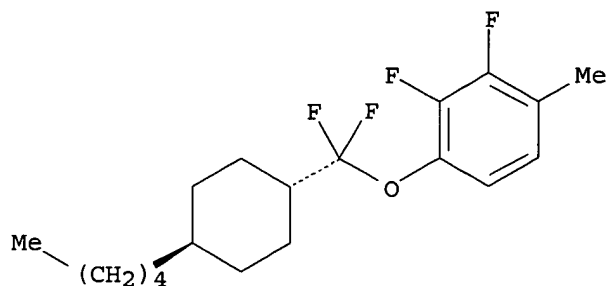
Relative stereochemistry.



RN 364765-49-1 CAPLUS

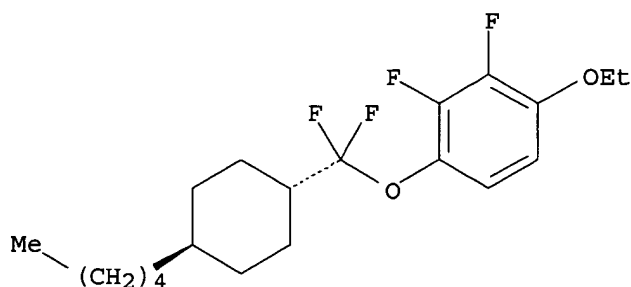
CN Benzene, 1-[difluoro(trans-4-pentylcyclohexyl)methoxy]-2,3-difluoro-4-methyl- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 364765-50-4 CAPLUS
 CN Benzene, 1-[difluoro(trans-4-pentylcyclohexyl)methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

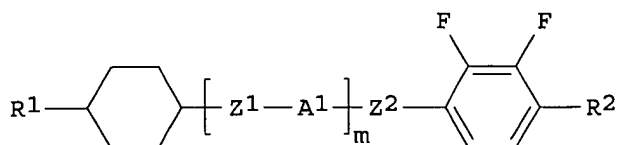
Relative stereochemistry.



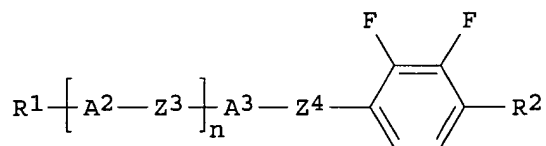
L6 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2003 ACS
 AN 2001:703524 CAPLUS
 DN 135:264650
 TI Nematic liquid-crystal compositions and active matrix-type displays using them
 IN Yanai, Motoki; Kubo, Yasuhiro; Nakagawa, Etsuo
 PA Chisso Corp., Japan; Chisso Sekiyu Kagaku K. K.
 SO Jpn. Kokai Tokkyo Koho, 27 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09K019-42
 ICS C09K019-20; C09K019-30; C09K019-34; C09K019-40; G02F001-13
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 75

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001262145	A2	20010926	JP 2000-72064	20000315
	US 2001038091	A1	20011108	US 2001-808019	20010315
	US 6395353	B2	20020528		
PRAI	JP 2000-72064	A	20000315		
OS	MARPAT 135:264650				
GI					



I



II

- AB The compns. contain (A) .gtoreq.1 of I, (B) .gtoreq.1 of II, and (C) .gtoreq.1 compds. selected from R1-1,4-C6H10(CO2)pA4(CO2)qR3 and R1-1,4-C6H10A5-1,4-C6H4(1,4-C6H10)sR3 [R1 = C1-10 alkyl, C2-10 alkenyl; R2 = C1-10 alkyl, alkoxy, C2-10 alkenyl; Z1, Z2 = CH2SiH2, single bond, CH2CH2; A1, A5 = trans-1,4-cyclohexylene, (fluorinated) 1,4-phenylene; Z3, Z4 = single bond, CH2CH2, CF2O, OCF2; A2, A3 = tetrahydropyran-2,5-diyl, trans-1,4-cyclohexylene, cyclohexa-1-ene-1,4-diyl, (fluorinated) 1,4-phenylene; A4 = 1,4-phenylene, trans-1,4-cyclohexylene; m, n, p, q, s = 0, 1]. The compns. show desired anisotropy of refractive index, high neg. anisotropy of dielec. const., high voltage retention, and low viscosity. Displays using the compns. show large viewing angle.
- ST nematic liq crystal mixt refractive index anisotropy; voltage retention nematic liq crystal mixt; viscosity nematic liq crystal mixt LCD; display liq crystal nematic dielec const anisotropy
- IT Liquid crystal displays
(nematic liq.-crystal compns. with low viscosity and high neg. anisotropy of dielec. const. for displays)
- IT Liquid crystals
(nematic; nematic liq.-crystal compns. with low viscosity and high neg. anisotropy of dielec. const. for displays)
- IT 67589-40-6D, mixts. contg. 67589-46-2D, mixts. contg. 73255-62-6D, mixts. contg. 79284-92-7D, mixts. contg. 79709-84-5D, mixts. contg. 80944-44-1D, mixts. contg. 83242-83-5D, mixts. contg. 84655-98-1D, mixts. contg. 84656-75-7D, mixts. contg. 84656-77-9D, mixts. contg. 85600-56-2D, mixts. contg. 88038-92-0D, mixts. contg. 88416-69-7D, mixts. contg. 88416-70-0D, mixts. contg. 88416-84-6D, mixts. contg. 96624-41-8D, mixts. contg. 96624-43-0D, mixts. contg. 96624-52-1D, mixts. contg. 110881-30-6D, mixts. contg. 115785-12-1D, mixts. contg. 123560-48-5D, mixts. contg. 124728-48-9D, mixts. contg. 124728-81-0D, mixts. contg. 124729-02-8D, mixts. contg. 126315-25-1D, mixts. contg. 129738-34-7D, mixts. contg. 131790-57-3D, mixts. contg. 138366-39-9D, mixts. contg. 174350-05-1D, mixts. contg. 181369-18-6D, mixts. contg. 189750-98-9D, mixts. contg. **197012-45-6D**, mixts. contg. 252960-22-8D, mixts. contg. 253199-16-5D, mixts. contg. 253676-69-6D, mixts. contg. 321308-88-7D, mixts. contg. 321308-89-8D, mixts. contg. 321308-95-6D, mixts. contg. 321308-96-7D, mixt. contg. 321308-98-9D, mixts. contg. 321309-03-9D, mixts. contg. 321309-04-0D, mixts. contg. 321395-36-2D, mixts. contg. 323575-38-8D, mixts. contg. 323575-44-6D, mixts. contg. 323575-45-7D, mixts. contg. 323575-46-8D, mixts. contg. 323575-48-0D, mixts. contg. **329014-46-2D**, mixt. contg. **329014-47-3D**, mixts. contg. **329014-48-4D**, mixts. contg. **329014-49-5D**, mixts. contg. **329014-50-8D**, mixt. contg. **329014-51-9D**, mixts. contg. **329038-55-3D**, mixts. contg. 335165-29-2D, mixts. contg. 335165-33-8D, mixts. contg. 335165-37-2D, mixts. contg. 335165-38-3D, mixts. contg. 335165-42-9D, mixts. contg.

335165-44-1D, mixts. contg. 335165-47-4D, mixts. contg.
 362053-47-2D, mixts. contg. 362053-48-3D, mixts. contg.
 362053-49-4D, mixts. contg. 362053-52-9D, mixts. contg. 362053-54-1D,
 mixts. contg. 362053-55-2D, mixts. contg. 362053-56-3D, mixts.
 contg. 362053-57-4D, mixts. contg. 362053-58-5D,
 mixts. contg. 362053-59-6D, mixts. contg. 362053-60-9D
 , mixts. contg. 362053-61-0D, mixts. contg. 362053-62-1D, mixts.
 contg. 362053-63-2D, mixts. contg. 362053-64-3D, mixts. contg.
 362053-65-4D, mixts. contg. 362053-66-5D, mixts. contg.
 362053-67-6D, mixts. contg. 362053-68-7D, mixts. contg.
 362053-69-8D, mixts. contg. 362053-70-1D, mixts. contg.
 362053-71-2D, mixts. contg. 362053-72-3D, mixts. contg. 362053-73-4D,
 mixts. contg.

RL: DEV (Device component use); USES (Uses)

(nematic liq.-crystal compns. with low viscosity and high neg.
 anisotropy of dielec. const. for displays)

IT 197012-45-6D, mixts. contg. 329014-46-2D, mixt. contg.
 329014-47-3D, mixts. contg. 329014-48-4D, mixts. contg.
 329014-49-5D, mixts. contg. 329014-50-8D, mixt. contg.
 329014-51-9D, mixts. contg. 329038-55-3D, mixts. contg.
 362053-47-2D, mixts. contg. 362053-56-3D, mixts. contg.
 362053-57-4D, mixts. contg. 362053-58-5D, mixts. contg.
 362053-59-6D, mixts. contg. 362053-60-9D, mixts. contg.
 362053-67-6D, mixts. contg. 362053-68-7D, mixts. contg.
 362053-69-8D, mixts. contg.

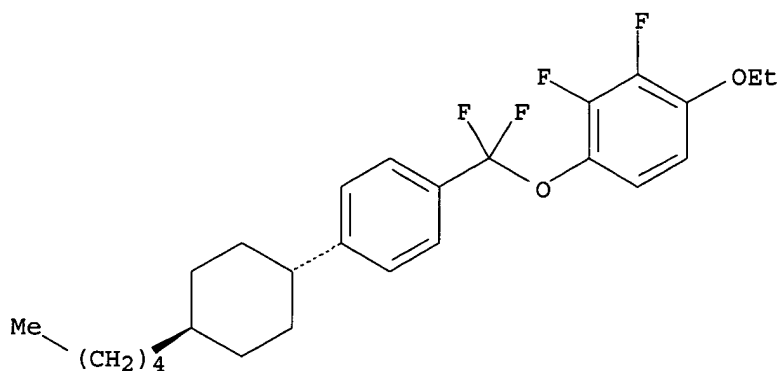
RL: DEV (Device component use); USES (Uses)

(nematic liq.-crystal compns. with low viscosity and high neg.
 anisotropy of dielec. const. for displays)

RN 197012-45-6 CAPLUS

CN Benzene, 1-[difluoro[4-(trans-4-pentylcyclohexyl)phenyl]methoxy]-4-ethoxy-
 2,3-difluoro- (9CI) (CA INDEX NAME)

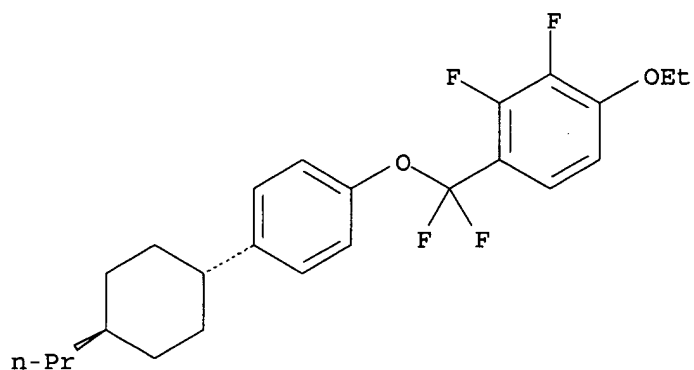
Relative stereochemistry.



RN 329014-46-2 CAPLUS

CN Benzene, 1-[difluoro[4-(trans-4-propylcyclohexyl)phenoxy]methyl]-4-ethoxy-
 2,3-difluoro- (9CI) (CA INDEX NAME)

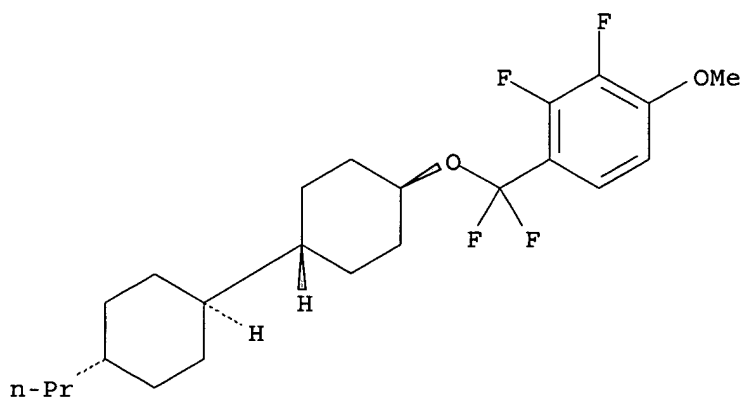
Relative stereochemistry.



RN 329014-47-3 CAPLUS

CN Benzene, 1-[difluoro[[(trans,trans) -4'-propyl[1,1'-bicyclohexyl] -4-yl]oxy]methyl]-2,3-difluoro-4-methoxy- (9CI) (CA INDEX NAME)

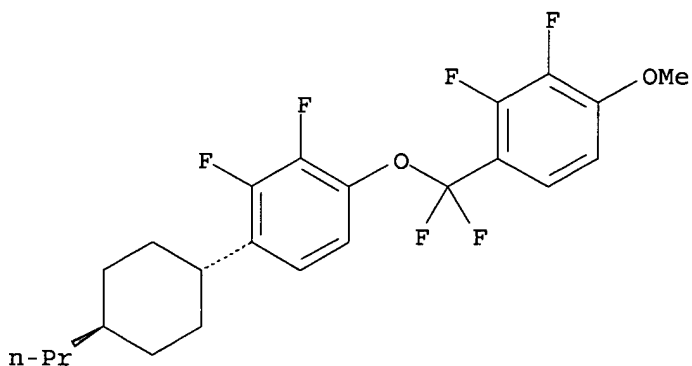
Relative stereochemistry.



RN 329014-48-4 CAPLUS

CN Benzene, 1-[(2,3-difluoro-4-methoxyphenyl)difluoromethoxy]-2,3-difluoro-4-(trans-4-propylcyclohexyl)- (9CI) (CA INDEX NAME)

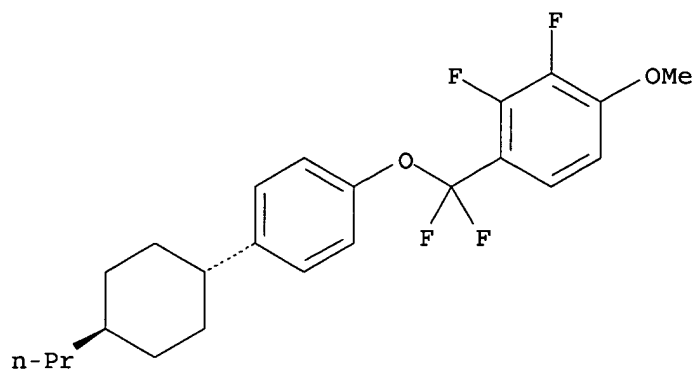
Relative stereochemistry.



RN 329014-49-5 CAPLUS

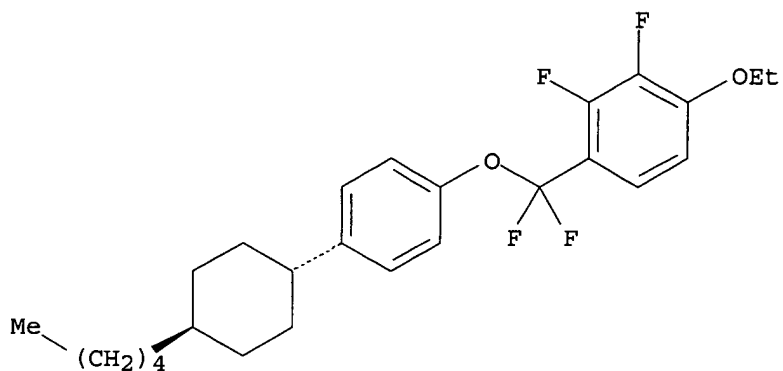
CN Benzene, 1-[difluoro[4-(trans-4-propylcyclohexyl)phenoxy]methyl]-2,3-difluoro-4-methoxy- (9CI) (CA INDEX NAME)

Relative stereochemistry.



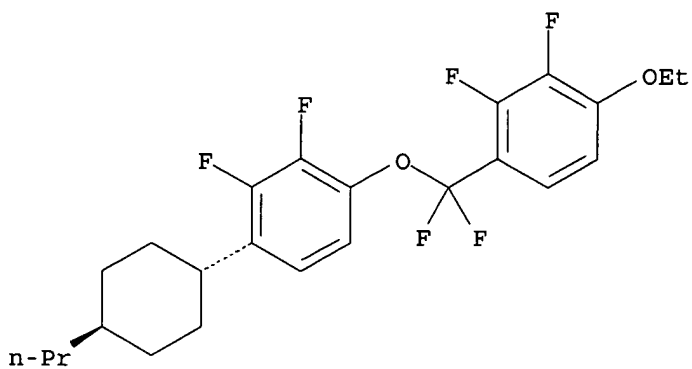
RN 329014-50-8 CAPLUS
 CN Benzene, 1-[difluoro[4-(trans-4-pentylcyclohexyl)phenoxy]methyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

Relative stereochemistry.



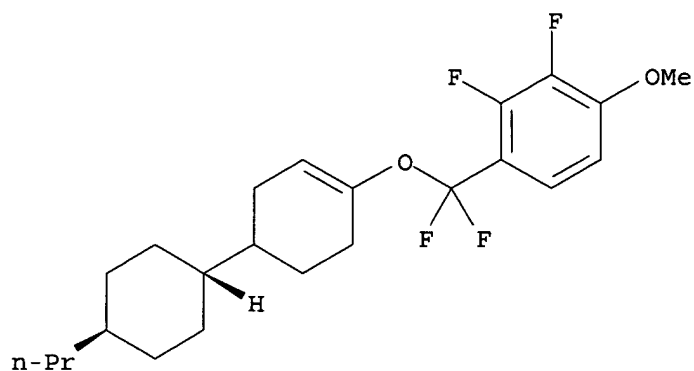
RN 329014-51-9 CAPLUS
 CN Benzene, 1-[[2,3-difluoro-4-(trans-4-propylcyclohexyl)phenoxy]difluoromethyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 329038-55-3 CAPLUS
 CN Benzene, 1-[difluoro[[4-(trans-4-propylcyclohexyl)-1-cyclohexen-1-yl]oxy]methyl]-2,3-difluoro-4-methoxy- (9CI) (CA INDEX NAME)

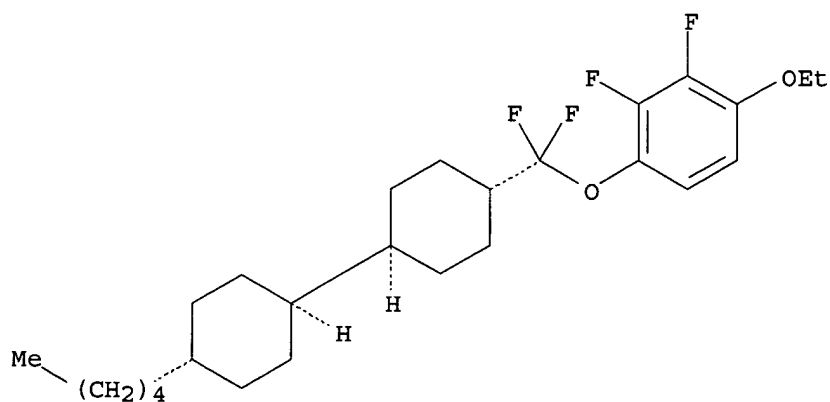
Relative stereochemistry.



RN 362053-47-2 CAPLUS

CN Benzene, 1-[difluoro[(trans,trans)-4'-pentyl[1,1'-bicyclohexyl]-4-yl]methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

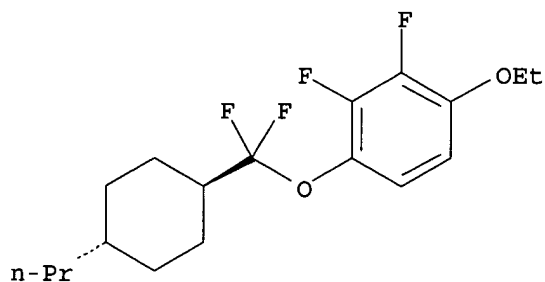
Relative stereochemistry.



RN 362053-56-3 CAPLUS

CN Benzene, 1-[difluoro(trans-4-propylcyclohexyl)methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

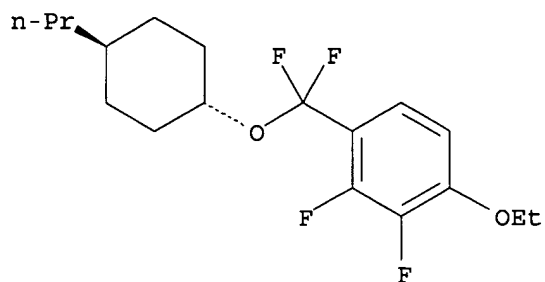
Relative stereochemistry.



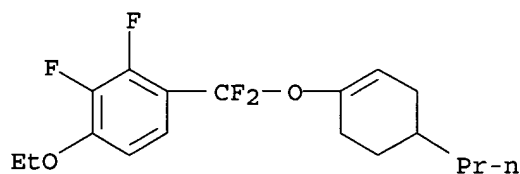
RN 362053-57-4 CAPLUS

CN Benzene, 1-[difluoro[(trans-4-propylcyclohexyl)oxy]methyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

Relative stereochemistry.

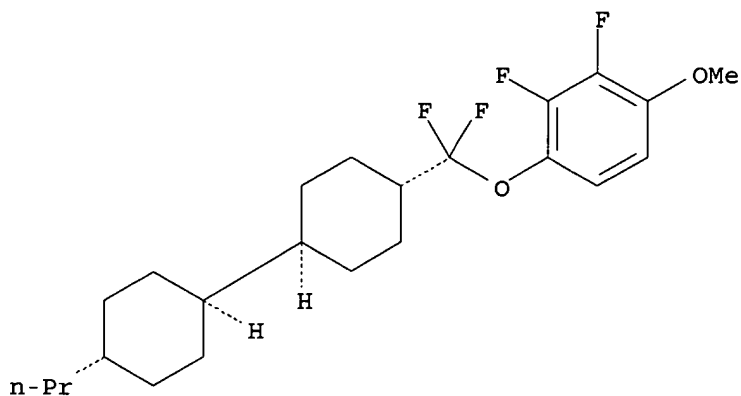


RN 362053-58-5 CAPLUS
 CN Benzene, 1-[difluoro[(4-propyl-1-cyclohexen-1-yl)oxy]methyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)



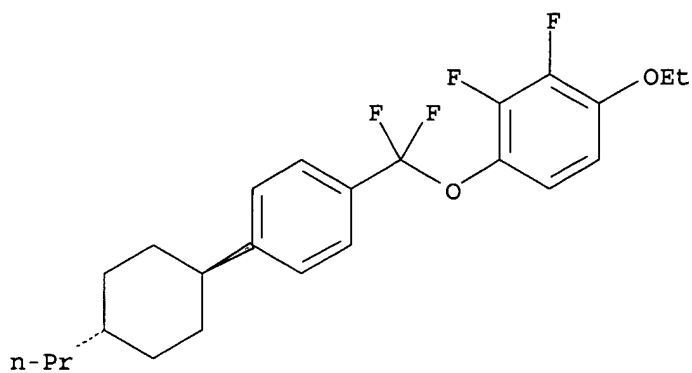
RN 362053-59-6 CAPLUS
 CN Benzene, 1-[difluoro[(trans,trans)-4'-propyl[1,1'-bicyclohexyl]-4-yl]methoxy]-2,3-difluoro-4-methoxy- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 362053-60-9 CAPLUS
 CN Benzene, 1-[difluoro[4-(trans-4-propylcyclohexyl)phenyl]methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

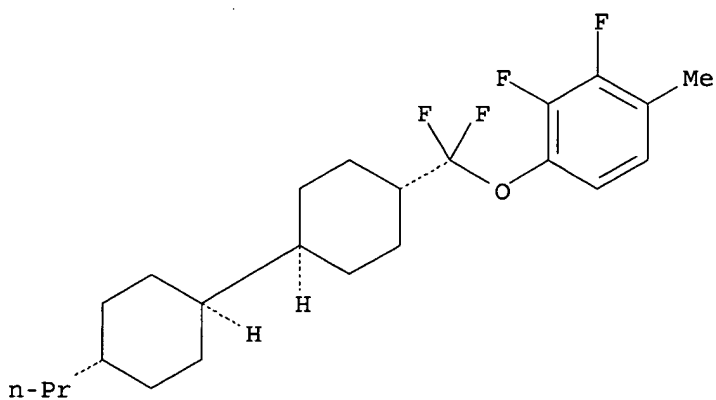
Relative stereochemistry.



RN 362053-67-6 CAPLUS

CN Benzene, 1-[difluoro[(trans,trans)-4'-propyl[1,1'-bicyclohexyl]-4-yl]methoxy]-2,3-difluoro-4-methyl- (9CI) (CA INDEX NAME)

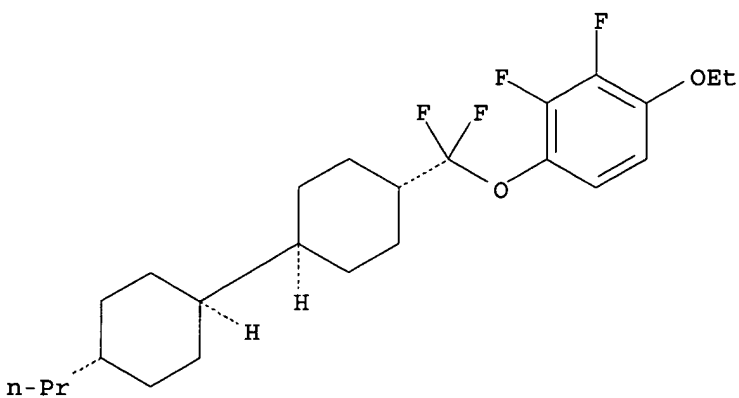
Relative stereochemistry.



RN 362053-68-7 CAPLUS

CN Benzene, 1-[difluoro[(trans,trans)-4'-propyl[1,1'-bicyclohexyl]-4-yl]methoxy]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

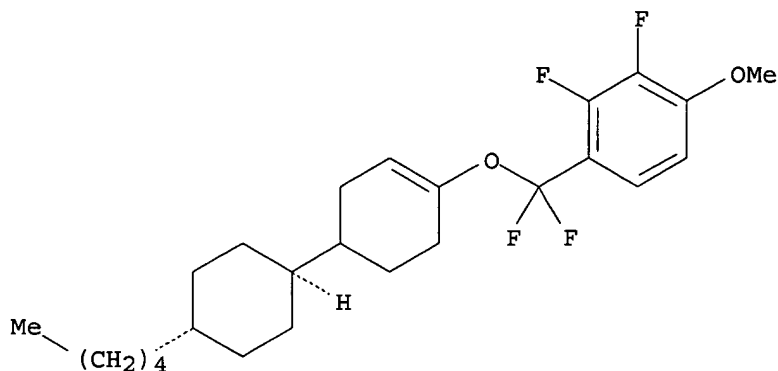
Relative stereochemistry.



RN 362053-69-8 CAPLUS

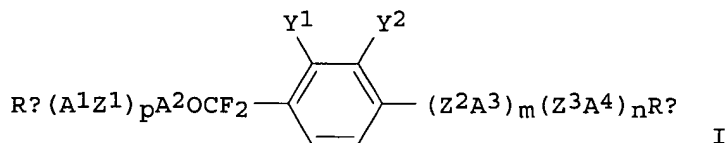
CN Benzene, 1-[difluoro[[4-(trans-4-pentylcyclohexyl)-1-cyclohexen-1-yl]oxy]methyl]-2,3-difluoro-4-methoxy- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2003 ACS
 AN 2001:165899 CAPLUS
 DN 134:207605
 TI Preparation of 1-cyclohexyloxydifluoromethyl-2,3-difluorobenzene liquid crystals having negative dielectric anisotropy, liquid crystal compositions containing them, and liquid crystal display devices using them.
 IN Sasada, Yasuyuki; Matsui, Shuichi; Takeuchi, Hiroyuki; Kubo, Yasuhiro; Nakagawa, Etsuo
 PA Chisso Corporation, Japan
 SO Eur. Pat. Appl., 84 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 IC ICM C07C043-225
 ICS C09K019-30; C09K019-04; C09K019-42; C09K019-46
 CC 25-9 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
 Section cross-reference(s): 75
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1081123	A2	20010307	EP 2000-250269	20000809
	EP 1081123	A3	20010912		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001139511	A2	20010522	JP 2000-260976	20000830
PRAI	JP 1999-245891	A	19990831		
OS	MARPAT 134:207605				
GI					



AB Title compds. (I; Ra, Rb = C1-10 linear or branched alkyl where any methylene in the alkyl may be replaced by O, S, CH:CH, C.tplbond.C, but O is not successive, and any H in the alkyl may be replaced by halo; rings A1-A4 = trans-1,4-cyclohexylene, cyclohexene-1,4-diyl, pyridine-1,4-diyl, pyrimidine-2,5-diyl, 1,4-phenylene, wherein .gtoreq.1 H in these rings may be replaced by halo, and any nonadjacent methylene in cyclohexane ring may be replaced by O; Y1, Y2 = F, Cl; Z1, Z2, Z3 = single bond, CH2CH2, (CH2)4, CO2, OCO, CH2O, OCH2, CF2O, OCF2; m, n, p = 0, 1 or 2; 1 + m + n

.ltoreq. 3), were prepd. Thus, 2,3-difluorobenzoic acid, 4-(4-propyl-1-cyclohexyl)phenol, DCC, and 4-dimethylaminopyridine were stirred in CH₂Cl₂ to give 4-(4-propylcyclohexyl)phenyl 4-ethoxy-2,3-difluorobenzoate. The latter was refluxed with Lawesson's reagent in mesitylene to give O-4-(4-propylcyclohexyl)phenyl 4-ethoxy-2,3-difluorothiobenzoate. This was added to a mixt. prepd. from N-bromosuccinimide and HF.pyridine in CH₂Cl₂ at -60.degree. to room temp. to give 2,3-difluoro-1-[4-(4-propylcyclohexyl)phenoxy]difluoromethyl-4-ethoxybenzene. This compd. was in the form of colorless crystals having a nematic phase.

ST cyclohexyloxydifluoromethyldifluorobenzene prepn liq crystal neg dielec anisotropy; display liq crystal cyclohexyloxydifluoromethyldifluorobenzene contg

IT Dielectric anisotropy
Liquid crystal displays
Liquid crystals
(prepn. of 1-cyclohexyloxydifluoromethyl-2,3-difluorobenzene liq. crystals having neg. dielec. anisotropy, liq. crystal compns. contg. them, and liq. crystal display devices using them)

IT 329014-46-2P 329014-47-3P 329014-48-4P
329014-49-5P 329014-50-8P 329014-51-9P
329014-52-0P 329014-53-1P 329038-55-3P
RL: DEV (Device component use); IMF (Industrial manufacture); PRP (Properties); PREP (Preparation); USES (Uses)
(prepn. of 1-cyclohexyloxydifluoromethyl-2,3-difluorobenzene liq. crystals having neg. dielec. anisotropy, liq. crystal compns. contg. them, and liq. crystal display devices using them)

IT 81936-33-6 82832-72-2 124728-45-6 329014-60-0 329014-61-1
329038-58-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of 1-cyclohexyloxydifluoromethyl-2,3-difluorobenzene liq. crystals having neg. dielec. anisotropy, liq. crystal compns. contg. them, and liq. crystal display devices using them)

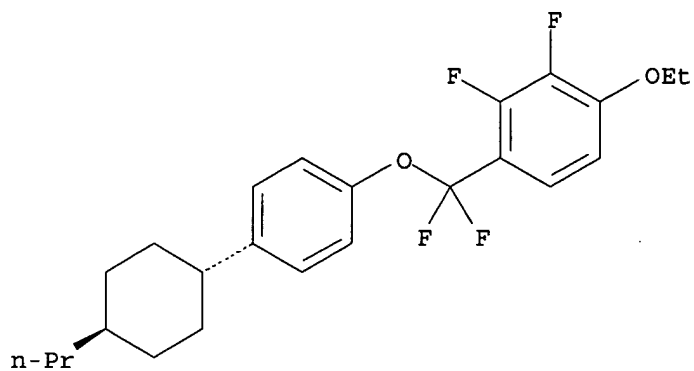
IT 329014-54-2P 329014-55-3P 329014-56-4P 329014-57-5P 329014-58-6P
329014-59-7P 329038-56-4P 329038-57-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of 1-cyclohexyloxydifluoromethyl-2,3-difluorobenzene liq. crystals having neg. dielec. anisotropy, liq. crystal compns. contg. them, and liq. crystal display devices using them)

IT 329014-46-2P 329014-47-3P 329014-48-4P
329014-49-5P 329014-50-8P 329014-51-9P
329014-52-0P 329014-53-1P 329038-55-3P
RL: DEV (Device component use); IMF (Industrial manufacture); PRP (Properties); PREP (Preparation); USES (Uses)
(prepn. of 1-cyclohexyloxydifluoromethyl-2,3-difluorobenzene liq. crystals having neg. dielec. anisotropy, liq. crystal compns. contg. them, and liq. crystal display devices using them)

RN 329014-46-2 CAPLUS

CN Benzene, 1-[difluoro[4-(trans-4-propylcyclohexyl)phenoxy]methyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

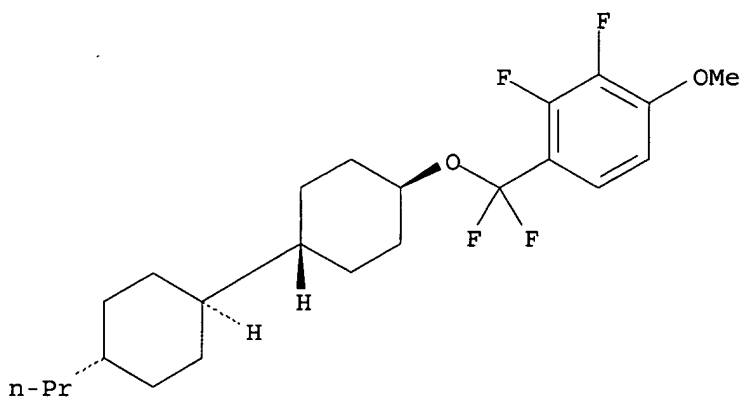
Relative stereochemistry.



RN 329014-47-3 CAPLUS

CN Benzene, 1-[difluoro[[(trans,trans) -4'-propyl [1,1'-bicyclohexyl] -4-yl]oxy]methyl]-2,3-difluoro-4-methoxy- (9CI) (CA INDEX NAME)

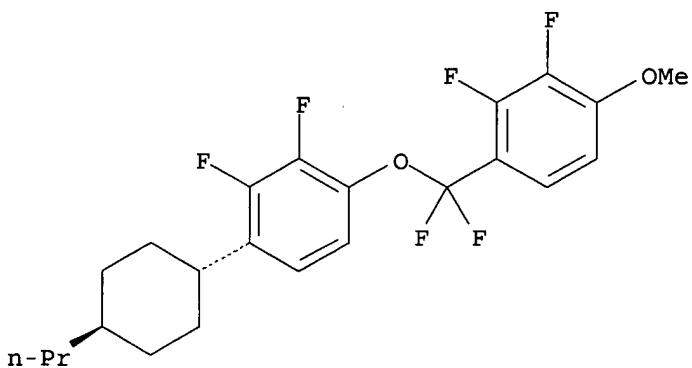
Relative stereochemistry.



RN 329014-48-4 CAPLUS

CN Benzene, 1-[(2,3-difluoro-4-methoxyphenyl) difluoromethoxy]-2,3-difluoro-4-(trans-4-propylcyclohexyl)- (9CI) (CA INDEX NAME)

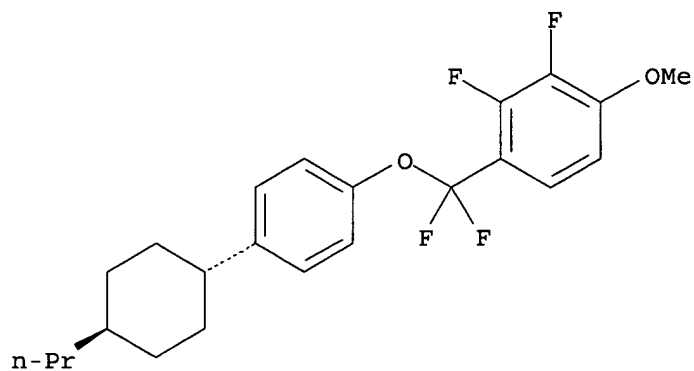
Relative stereochemistry.



RN 329014-49-5 CAPLUS

CN Benzene, 1-[difluoro[4-(trans-4-propylcyclohexyl)phenoxy]methyl]-2,3-difluoro-4-methoxy- (9CI) (CA INDEX NAME)

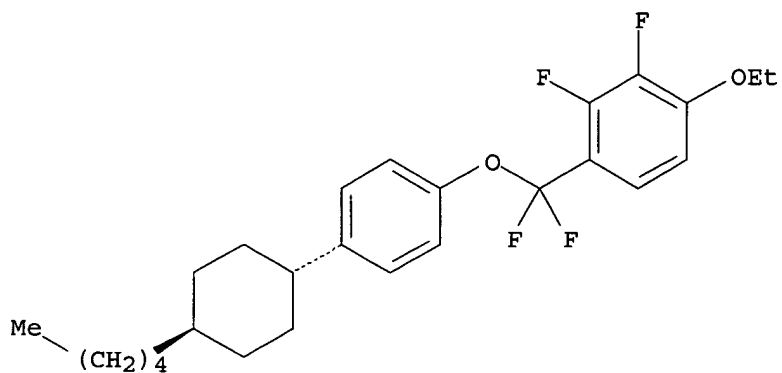
Relative stereochemistry.



RN 329014-50-8 CAPLUS

CN Benzene, 1-[difluoro[4-(trans-4-pentylcyclohexyl)phenoxy]methyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

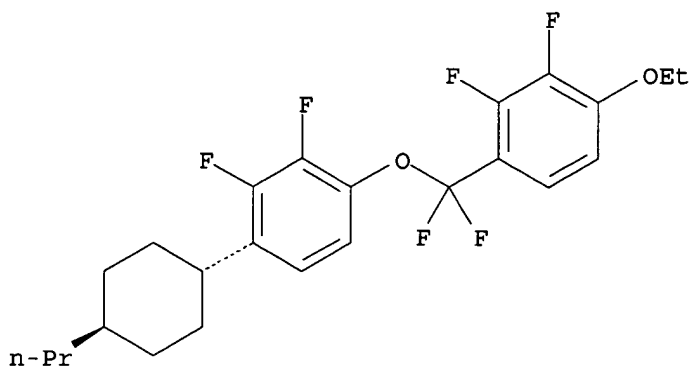
Relative stereochemistry.



RN 329014-51-9 CAPLUS

CN Benzene, 1-[[2,3-difluoro-4-(trans-4-propylcyclohexyl)phenoxy]difluoromethyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

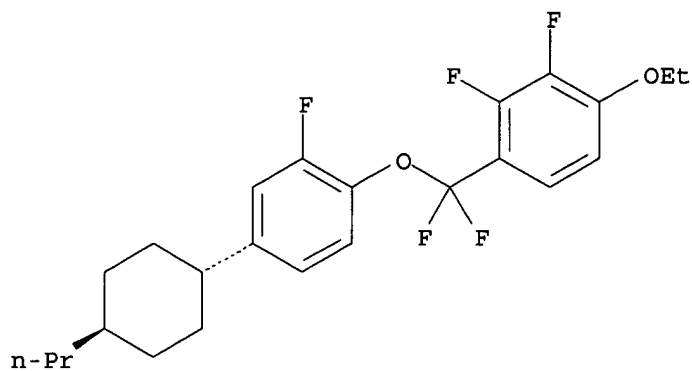
Relative stereochemistry.



RN 329014-52-0 CAPLUS

CN Benzene, 1-[difluoro[2-fluoro-4-(trans-4-propylcyclohexyl)phenoxy]methyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

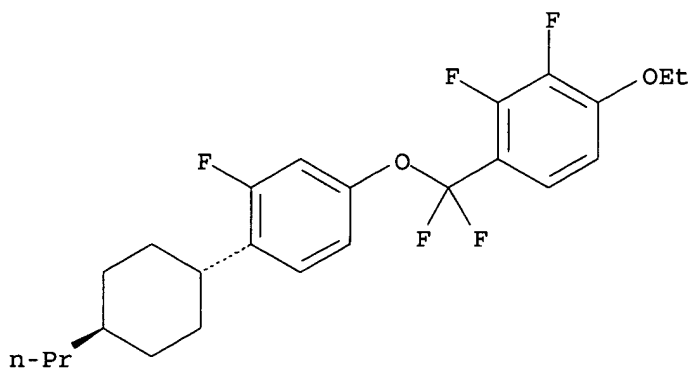
Relative stereochemistry.



RN 329014-53-1 CAPLUS

CN Benzene, 1-[difluoro[3-fluoro-4-(trans-4-propylcyclohexyl)phenoxy]methyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

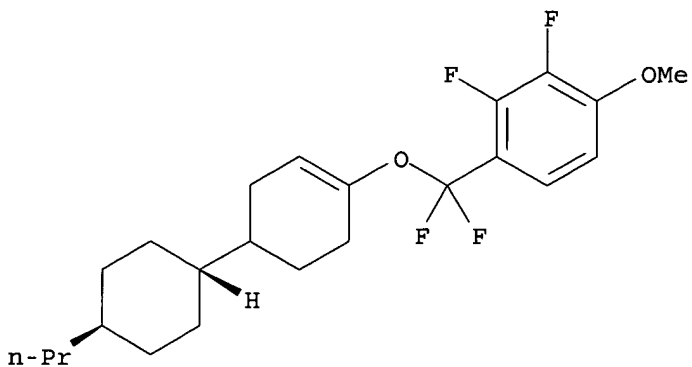
Relative stereochemistry.



RN 329038-55-3 CAPLUS

CN Benzene, 1-[difluoro[[4-(trans-4-propylcyclohexyl)-1-cyclohexen-1-yl]oxy]methyl]-2,3-difluoro-4-methoxy- (9CI) (CA INDEX NAME)

Relative stereochemistry.



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AN 1999:78518 CAPLUS

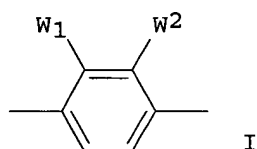
DN 130:189521

TI Liquid-crystal compound with negative anisotropy of dielectric constant, and composition and display using it

IN Sawada, Shinichi; Miyasawa, Kazutoshi; Takeuchi, Hiroyuki

PA Chisso Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 118 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C07F007-08
 ICS C07F007-12; C09K019-40; C09K019-42; G02F001-13
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 Section cross-reference(s): 29, 75
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11029581	A2	19990202	JP 1997-202270	19970711
PRAI	JP 1997-202270		19970711		
OS	MARPAT 130:189521				
GI					



AB The liq.-crystal compd. comprises R1(A1X1)a1(A2X2)a2(A3X3)a3(A4X4)a4A5a5Y1
 [R1, Y1 = (substituted) C1-30 alkyl; A1-A5 = (halogenated)
 silacyclohexane, cyclohexane-1,4-diyl, 1,4-phenylene, pyridine-2,5-diyl,
 pyrimidine-2,5-diyl, 1,3-dioxane-2,5-diyl, tetrahydropyran-2,5-diyl,
 bicyclo[1.1.1]pentane-1,3-diyl, or Q; .gtoreq.1 of A1-A5 = Q; .gtoreq.1 of
 A1-A5 = silacyclohexane; W1, W2 = F, Cl; X1-X4 = single bond,
 (substituted) C1-4 alkylene' .gtoreq.1 of X1-X4 = difluoromethyleneoxy;
 R2, R3 = H, halo, C1-3 alkyl or alkoxy; a1-a5 = 0, 1]. The compn. contg.
 .gtoreq.1 of the compd. and the display using the compn. are also claimed.
 The liq.-crystal compd. shows low viscosity, high neg. anisotropy of
 dielec. const., and light and heat resistance.

ST silacyclohexylene fluoromethyleneoxy chlorophenylene liq crystal display;
 anisotropy neg dielec const liq crystal

IT Liquid crystal displays
 Liquid crystals
 (silacyclohexylene-contg. liq.-crystal compd. with neg. anisotropy of
 dielec. const. for display)

IT 220583-74-4P
 RL: DEV (Device component use); IMF (Industrial manufacture); PRP
 (Properties); TEM (Technical or engineered material use); PREP
 (Preparation); USES (Uses)
 (silacyclohexylene-contg. liq.-crystal compd. with neg. anisotropy of
 dielec. const. for display)

IT 220583-76-6
 RL: DEV (Device component use); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (silacyclohexylene-contg. liq.-crystal compd. with neg. anisotropy of
 dielec. const. for display)

IT 121219-07-6P 220436-96-4P 220436-98-6P 220437-00-3P 220437-02-5P
 220437-04-7P 220437-05-8P 220437-06-9P 220437-07-0P 220583-75-5P
 RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);
 RACT (Reactant or reagent)
 (silacyclohexylene-contg. liq.-crystal compd. with neg. anisotropy of
 dielec. const. for display)

IT 220437-08-1 220437-09-2 220437-10-5 220437-11-6 220437-12-7
 220437-13-8 220583-77-7
 RL: PRP (Properties); TEM (Technical or engineered material use); USES

(Uses)

(silacyclohexylene-contg. liq.-crystal compd. with neg. anisotropy of dielec. const. for display)

IT 74-96-4, Ethyl bromide 75-15-0, Carbon disulfide, reactions 4746-97-8, 1,4-Cyclohexanedione mono(ethylene ketal) 6418-38-8, 2,3-Difluorophenol 7789-60-8, Phosphorus tribromide 38078-09-0, Diethylaminosulfur trifluoride 184910-58-5, 4-Propyl-4-methyl-4-silacyclohexanone

RL: RCT (Reactant); RACT (Reactant or reagent)

(silacyclohexylene-contg. liq.-crystal compd. with neg. anisotropy of dielec. const. for display)

IT 220437-12-7 220583-77-7

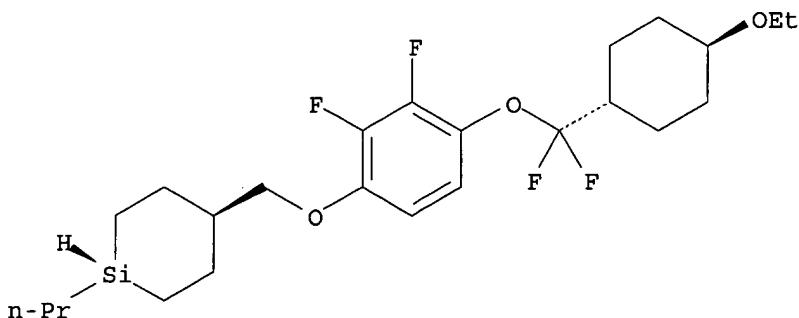
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(silacyclohexylene-contg. liq.-crystal compd. with neg. anisotropy of dielec. const. for display)

RN 220437-12-7 CAPLUS

CN Silacyclohexane, 4-[[4-[(trans-4-ethoxycyclohexyl)difluoromethoxy]-2,3-difluorophenoxy]methyl]-1-propyl-, trans- (9CI) (CA INDEX NAME)

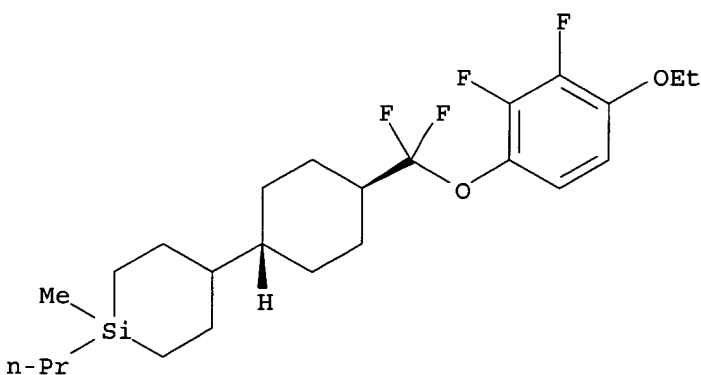
Relative stereochemistry.



RN 220583-77-7 CAPLUS

CN Silacyclohexane, 4-[trans-4-[(4-ethoxy-2,3-difluorophenoxy)difluoromethyl]cyclohexyl]-1-methyl-1-propyl- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2003 ACS

AN 1997:679042 CAPLUS

DN 127:301549

TI Preparation of liquid crystal compounds, liquid crystal compositions containing the compounds, and liquid crystal display devices made by using the compositions

IN Ando, Tsugumichi; Matsui, Shuichi; Miyazawa, Kazutoshi; Takeuchi, Hiroyuki; Koizumi, Yasuyuki; Sekiguchi, Yasuko; Nakagawa, Etsuo;